CLAIMS

1. A method of making a silicon micromechanical structure, comprising the steps of:

forming a lightly doped silicon substrate having a first and second side and having less than $5x10^{19}$ cm^{-3} boron therein;

placing a p+ layer on the first side of said substrate, said p+ having a boron content of greater than $7x10^{19}$ cm^{-3} and a germanium content of about $1x10^{21}$ cm^{-3};

forming a mask on the second side for etching a predetermined pattern;

etching said second side to said p+ layer; and

depositing an insulator on said p+ layer and fabricating an electronic component on said insulator.

2. The method of claim 1, wherein said boron content is greater than $1x10^{20}$ cm^{-3} and the germanium content is from about 0.5×10^{21} cm^{-3} to about 2.0×10^{21} cm^{-3}.

3. The method of claim 1, wherein said micromechanical structure is a pressure sensor.

4. The method of claim 3, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

5. The method of claim 1, wherein said micromechanical structure is a cantilevered accelerometer.

6. The method of claim 5, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

7. The method of claim 1, wherein said micromechanical structure is a dual web biplane accelerometer formed by forming a said p+ layer on both sides of said substrate, forming a proof mask and flexure etching on both sides of said layer until said etching reaches said p+ layers.

8. The method of claim 7, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

9. The method of claim 1, wherein said micromechanical structure includes a dielectrically isolated piezoresistor formed on a top surface of a first wafer, a second wafer is bonded to said first wafer, and said second wafer forms a single crystal piezoresistor.

10. A method of making a silicon micromechanical structure, comprising the steps of:

forming a lightly doped silicon substrate having a first and second side and having less than $5x10^{19}$ cm^{-3} boron therein;

placing a p+ layer on the first side of said substrate, said p+ having a boron content of greater than $7x10^{19}$ cm^{-3} and a germanium content of about $1x10^{21}$ cm^{-3};

forming a lightly doped layer on said p+ layer to form a buried p+ layer;

forming a mask on the second side for etching a predetermined pattern;

etching said second side to said buried p+ layer; and

depositing an insulator on said lightly doped layer and fabricating an electronic component on said insulator.

11. The method of claim 10, wherein said boron content is greater than 1×10^{20} cm^{-3} and the germanium content is from about 0.5×10^{21} cm^{-3} to about 2.0×10^{21} cm^{-3}.

12. The method of claim 10, wherein said micromechanical structure is a pressure sensor.

13. The method of claim 12, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

14. The method of claim 10, wherein said micromechanical structure is a cantilevered accelerometer.

15. The method of claim 14, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

16. The method of claim 10, wherein said micromechanical structure is a dual web biplane accelerometer formed by forming a

said p+ layer on both sides of said substrate, forming a proof mask and flexure etching on both sides of said layer until said etching reaches said p+ layers.

17. The method of claim 16, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

18. The method of claim 10, wherein said micromechanical structure includes a dielectrically isolated piezoresistor formed on a top surface of a first wafer, a second wafer is bonded to said first wafer, and said second wafer forms a single crystal piezoresistor.

19. A device produced according to the method of claim 1.

20. The device of claim 19, wherein said boron content is greater than 1×10^{20} cm^{-3} and the germanium content is from about 0.5×10^{21} cm^{-3} to about 2.0×10^{21} cm^{-3}.

21. The device of claim 19, wherein said micromechanical structure is a pressure sensor.

22. The device of claim 21, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

23. The device of claim 19, wherein said micromechanical structure is a cantilevered accelerometer.

24. The device of claim 23, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

25. The device of claim 19, wherein said micromechanical structure is a dual web biplane accelerometer formed by forming a said p+ layer on both sides of said substrate, forming a proof mask and flexure etching on both sides of said layer until said etching reaches said p+ layers.

26. The device of claim 25, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

27. The device of claim 19, wherein said micromechanical structure includes a dielectrically isolated piezoresistor formed on a top surface of a first wafer, a second wafer is bonded to said first wafer, and said second wafer forms a single crystal piezoresistor.

28. A device produced according to the method of claim 10.

29. The device of claim 28, wherein said boron content is greater than 1×10^{20} cm^{-3} and the germanium content is from about 0.5 $\times 10^{21}$ cm^{-3} to about 2.0 $\times 10^{21}$ cm^{-3}.

30. The device of claim 28, wherein said micromechanical structure is a pressure sensor.

31. The device of claim 30, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

32. The device of claim 28, wherein said micromechanical structure is a cantilevered accelerometer.

33. The device of claim 32, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

34. The device of claim 28, wherein said micromechanical structure is a dual web biplane accelerometer formed by forming a said p+ layer on both sides of said substrate, forming a proof mask and flexure etching on both sides of said layer until said etching reaches said p+ layers.

35. The device of claim 34, wherein said electronic component is selected from the group consisting of dielectrically isolated piezoresistors and resonant microbeams.

36. The device of claim 28, wherein said micromechanical structure includes a dielectrically isolated piezoresistor formed on a top surface of a first wafer, a second wafer is bonded to said first wafer, and said second wafer forms a single crystal piezoresistor.